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**Descriptions of the larvæ of the North American genera
of CICINDELIDÆ, also of DICÆLUS with a note on
RHYNCHOPHORUS.**

BY GEORGE H. HORN, M. D.

Through the exertions of Mr. E. W. Guild of Manhattan, Kansas, the larva of *Amblychila* has at last been made known to the scientific world. Hearing that I was about to publish a description, Dr. Hagen of the Museum of Comparative Zoology at Cambridge, placed at my disposal the larvæ of the other genera of Cicindelidæ.

The accompanying plate (II) will enable the forms of these larvæ as well as their different members to be compared so that the resemblances and differences will be at once apparent. I have thought it advisable to give lateral instead of the dorsal views usually given because the larvæ are naturally in the position in which I have represented them, and it always seemed to me very unnatural to represent a *Cicindela* larva as if walking when in fact it is almost impossible for them to do so at all. The larvæ of Cicindelidæ live in holes in the ground excavated nearly vertically and when on the watch for prey the thorax and head are on the level of the top of the hole, the mandibles widely separated. In this position they remain until a small insect is captured when they retire and leisurely devour it, the debris is always pushed out and thrown some distance by a quick motion of the head and thorax. The larva is enabled to maintain this position at the mouth of the burrow by means of the hooks on the back of the fifth abdominal segment and by the anal segment itself. The natural position of each larva in its burrow is that represented on the plate, and it is absolutely impossible for these larvæ to assume the form in which they are usually represented.

In all the larvæ of Cicindelidæ the spiracles have a precisely similar arrangement. *Dicælus* has the anterior spiracle in the mesothorax. Attention should be directed to the more accurate description of the position of these organs as they are usually either entirely passed by or spoken of as "spiracles normal."

The larvæ of Curabidæ as far as known are active and cursorial, seeking their prey, while the larvæ of Cicindelidæ are solitary, sedentary and lie in wait for prey, never changing their place.

***Amblychila cylindriformis*, Say.**

COLOR yellowish white, head and prothoracic scute castaneous.

FORM cylindrical, slightly flattened, head and prothorax bent at right angle to the body, tip of abdomen beyond the larger segment (fifth abdominal), gradually arcuate. Viewed on the dorsal aspect the body is gradually but slightly broader from the metothoracic segment to the fifth ventral, then gradually smaller to the tip which is obtuse. Viewed laterally the body is nearly of equal thickness excepting the gibbosity of the fifth abdominal segment. Length in normal position about 1.25 long, 3.2 mm. or when extended .5 inch, 12.5 mm. longer; thickness .24—.30 inch; 6—7.5 mm. The larva before me is probably not fully grown. Plate II, fig. 1, 1 a to 1 g.

HEAD corneous, above piceous slightly concave, half covered by the thorax, beneath very convex, resting posteriorly against the anterior coxæ. Upper surface of head broader than long, frontal margin trilobed, the lateral lobes broadly rounded and covering the base of the mandibles, the middle lobe prominent, obtuse, margin crenate, on each side at base a short obtuse process external to which is an obsolete suture. This lobe corresponds with the labrum and the suture may be faintly seen entirely surrounding it. Two ridges cross the head transversely, one between the base of the mandibles, the other forming the posterior margin of the head, both are feebly tuberculate, the tubercles bearing hairs of varying length. The under side of the head is cordiform in shape, convex, broader than long, with one median suture running from the anterior to the posterior margin, and a short oblique impression on each side in front, the two joining on the median line forming a V. The margin of the buccal opening is trilobed, the middle lobe or submentum triangularly emarginate. In the notch separating the submentum from the lateral lobes the maxillæ arise. The lateral lobes are longer than the median, their anterior edge has an elevated margin or bead. From the base of the mandibles a curved elevated line extends to the tip of the middle lobe.

EYES are situated, one on each side, near the posterior angles of the head on the upper surface and are round convex and simple; surrounding the eyes are numerous mammiliform tubercles, each bearing a hair.

ANTENNÆ are situated immediately behind the base of the mandibles, and are composed of four joints, the first joint stouter, the second nearly twice as long, the third, one-fifth the length of the second and the fourth very minute. The joints have moderately long hairs arising from the upper surface.

MANDIBLES are long, slender, acute, moderately curved, directed upwards at an angle of 45° to the plane of the head, with a triangular tooth slightly behind the middle. There is no trace of the basal molar tooth of the imago.

MAXILLÆ—These are semi-corneous, moderately long and consist of a very small triangular basal piece, a moderately long, compressed-cylindric second joint (cardinal piece), which is finbrate with long hairs on the inner face, a third piece more slender and compressed, somewhat shorter than the preceding with stiff bristles on the inner side, to this is attached a small terminal piece also with bristles. From the thickened base of the third piece arises a three jointed palpus, the joints of which are gradually shorter, the whole not extending beyond the tip of the maxilla.

MENTUM.—The mentum is corneous rather broadly obovate, the posterior edge with slightly elevated margin or bead. The palpi are stout, two jointed and arise from the face of the mentum slightly in front of middle.

PROTHORAX.—This segment is slightly broader than the head, of nearly semicircular form, anteriorly broadly emarginate, the angles nearly rectangular. Along the entire edge (except apical margin), there is a distinctly elevated margin or bead, less evident at the middle of the base. The median line is fine but distinctly impressed, and on each side a sinuous oblique impression.

MESOTHORAX.—This segment is much narrower than the preceding, trapezoidal, narrower posteriorly, the anterior angles broadly arcuate; the dorsal surface scarcely at all corneous. At the middle of the anterior margin the scutellum is distinctly indicated.

METATHORAX.—As broad at apex as the base of the preceding segment, gradually broader posteriorly, sides nearly straight, dorsal surface feebly corneous and with several vague impressions on each side, and a slightly reflexed margin each side of base.

ABDOMEN.—The first four segments are similar in structure. Form transverse, more than twice as wide as long, each gradually longer and wider than the preceding; on each side of middle a rounded plate of denser structure each with a few short bristles near its posterior margin. The ventral surface of each segment has but one transversely oval plate, the short bristles rather irregularly scattered. The fifth abdominal is broader than any which precede or follow, its dorsal aspect more gibbous, the semi-corneous plates are larger and each has two short corneous spurs of unequal length with dilated base around

which are numerous short and stout spinules. Anterior to the spines are numerous short bristly hairs and along the posterior margin of the segment two groups of short stout spinules similar to those around the base of the two spurs. The next three segments are gradually narrower and are relatively longer than the segments 1—4. The ninth segment is very short and much narrower than the eighth and has moderately long fimbriæ at the sides of tip. The anal segment is entirely corneous and rather densely fimbriate.

SPIRACLES.—There are nine pairs of spiracles. The anterior is situated under the margin of the prothorax behind the base of the anterior coxa, and is much larger than the others. The other spiracles are in the abdominal segments 1—8, and are situated in the side of the segment, in front of the middle and in the deep fold which is nearest the dorsal aspect of the segment.

LEGS.—The anterior and posterior pair are of equal length the middle somewhat shorter. The coxæ are conical and prominent and nearly equal to the rest of the leg. The second piece appears to be composed of a connate trochanter and femur, the separation indicated by an oblique impression and a feeble subangulation on the lower margin. The tibia is short, slightly conical and rather densely fimbriate and with a short tarsal piece from which arise two unequal claws.

For this larva science is indebted to the researches of Mr. E. W. Guild of Manhattan, Kansas. From his letters I transcribe the following notes:

"The burrows are found in all gradations of surface, from a perfect level to a nearly vertical face, but are in greatest numbers in slopes of about 30°. They are very noticeable from their large size and occurrence in clusters. Dry clayey banks are preferred and all the burrows I have examined enter at right angles to the surface of the soil and remain straight for three-fourths of their length then gradually curving. It is not unusual to see the larvæ after sundown or earlier if the day be cloudy. They are however very shy and I know of but one specimen being taken without considerable digging."

The burrows vary in depth from fourteen inches to three feet.

In this larva Dr. Leconte has recognized that mentioned by him (Ann. Lyc. iv, 1845, p. 143), as the larva of *Pasimachus*. All references to the larva of the latter must now be expunged.

***Omus Dejeani*, Reiche.**

COLOR yellowish white, head piceous, prothoracic scute pale castaneous.

FORM cylindrical, slightly flattened, head and thorax flexed at a

right angle to the body, last three abdominal segments arcuate forward. Head and prothorax twice as wide as mesothorax, from the latter to fifth ventral body gradually broader, then slightly narrowed to tip. Viewed laterally the body is nearly of equal thickness except at the gibbosity of the fifth abdominal. Length of larva in normal flexed position .80 inch; 20 mm; width about .16 inch; 4 mm. Evidently not fully developed. Plate II, fig. 2, 2a to 2e.

HEAD corneous, slightly concave, piceous with feeble cupreous lustre, general outline semicircular. Surface slightly longitudinally wrinkled in front. Frontal suture distinct, indicated by a paler transverse space. Clypeus trilobed, middle lobe moderately prominent, edge obtusely toothed, separated from the lateral lobes by a feeble acute notch exterior to which is a small tooth, lateral lobes much smaller than the middle, rounded. Vertex with distinct transverse carina posteriorly, two setæ at middle near the frontal suture, others at the sides, hind angles of head rounded. Head beneath convex, longitudinally impressed, broadly cordiform. Anterior margin trilobed, middle lobe truncate in front, lateral lobes more prominent than the middle, their anterior margin nearly transverse, forming a right angle with the inner margin, limited posteriorly by an elevated line extending from the base of the mandible to the inner lobe but not ascending along the outer side of the latter as in *Amblychila*.

EYES—These are four in number on each side, two larger very convex, on the upper side, the posterior larger than the anterior; two smaller eyes on the side of the head, the anterior immediately beneath the superior eye, the other more posterior, somewhat larger, less convex and transparent. Around the eyes are small setigerous tubercles.

ANTENNÆ four jointed, situated on the front, behind and above the base of the mandibles and in front of the anterior eye; about half as long as the mandibles; joints 1—3 equal in length, the first two stouter, joint four half the length of the third and more slender. The first two joints have moderately long setæ, three at their distal end and two at middle, the third joint has very short setæ at tip, the fourth two moderately long slender setæ at tip.

MANDIBLES falciform, acute at tip, when closed applied against the frontal margin, an acute tooth on the inner margin slightly behind the middle.

MAXILLÆ semi-corneous, elongate, arising in the notch on each

side of the base of the mentum, similar in form to *Amblychila*, but with the terminal piece of the inner lobe relatively longer and the palpi with joints one and three equal in length, the second joint shorter.

MENTUM consists of a small triangular basal piece from which arise two coriaceous processes or basal supports of the palpi which are two jointed, relatively longer than in *Amblychila*, first joint stout armed with strong spines at tip, second joint more slender and slightly longer.

PROTHORAX semi-corneous, nearly exactly semicircular, apex feebly bisinuate, angles acute, disc feebly convex, margins narrowly reflexed, surface moderately shining, median line finely impressed, a transverse, slightly oblique impression in front of middle and with setæ along the apical margin, two at middle of disc, and feebly fimbriate along the margins.

MESOTHORAX half as wide as prothorax, feebly semi-corneous, one-half wider than long, sides parallel and straight, apex very suddenly narrowed.

METATHORAX very little wider than the mesothorax, sides obtusely angulate.

ABDOMEN.—Segments 1—4 gradually longer, otherwise similar in form, each with two semi-corneous plates on the dorsal face, and four on the ventral aspect feebly marked; sides of segments with two feebly semi-corneous plates in the connecting membrane which is deeply wrinkled forming vaguely two channels which extend from the metathorax to the tip of the abdomen. Fifth ventral more gibbous posteriorly and longer than the preceding segments, and with the usual plates and with two hooks on each side directed anteriorly, the outer hook longer, both stout at base and suddenly more slender at tip; posteriorly to the hooks are numerous fine spinules. The next three segments are gradually narrower. The ninth segment is more decidedly corneous. The anal segment is subconical, apical margin crenulate, anal opening ventral.

SPIRACLES are as in *Amblychila*.

LEGS are as in *Amblychila*.

The general aspect of this larva is intermediate between that of *Cicindela* and *Amblychila* the more striking points of difference will be indicated hereafter in a tabular form.

For the privilege of studying this larva I am indebted to Dr. H. Hagen of the Museum of Comparative Zoology at Cambridge.

***Tetracha carolina*, Linn.**

COLOR yellowish white, head and thorax corneous with metallic surface, the margin of the latter testaceous.

FORM rather slender, cylindrical, slightly flattened, head and thorax at right angles to the body, last four segments of abdomen gradually arcuate forward. Length .68 inch; 17 mm. Plate II, fig. 3, 3 a to 3 e.

HEAD corneous, with æneous surface lustre, general form triangular with rounded angles. Above slightly concave, a strongly elevated transverse ridge posteriorly. Frontal margin with prominent median lobe, lateral lobes feebly arcuate and with a small tooth near the middle lobe; sides in front of eyes rather deeply sinuate, behind the eyes very suddenly narrowed. Head beneath broadly cordiform, very convex, sides subparallel for a short distance at middle, median line (especially in front), distinctly impressed, posteriorly distinctly notched. Apical margin trilobed, median lobe more prominent, with convergent sides and oval at tip, lateral lobes triangular, limited behind by an elevated line.

EYES.—There are two pairs of eyes on each side of the head. The superior eyes are large and prominent and equal in size, the one near the posterior angle of the head, the other a short distance in front. The smaller eyes are situated as follows: one moderately convex on the declivity in front of and beneath the upper front eye, the second is less convex is on the under side of the head immediately beneath the front large eye. These eyes are so arranged as to admit of a complete circle of vision. In the natural position of the head the posterior eyes look directly backwards, the front eyes directly upwards, the smaller front eye has vision to the front while the other small eye has a lateral scope.

ANTENNÆ.—These are situated at the side of the head immediately behind the base of the mandibles, four jointed, first joint stout, setigerous in front, second joint as long as the next two together, flattened and setigerous in front, third and fourth joints much more slender than the others, the terminal shorter than the third.

MANDIBLES slender, falciform, acute, more prominent than the margin of the front, armed with an acute tooth near the base.

MAXILLÆ stout, with the usual small triangular basal piece, second joint (cardinal piece), attaining the margin of the head, with two small tubercles bearing short spines on the anterior margin near the base, third piece (maxilla proper), stout with a more slender piece

rather more than half its length attached to the tip and semi-anchylosed, inner margin near the tip trituberculate and with short spines. Palpi three jointed, first joint as broad as long, second equally stout but longer, third joint more slender and nearly as long as the second.

MENTUM small, oval, coriaceous at tip, slightly concave. Palpi two jointed, joints rather slender and nearly equal, the terminal being slightly more slender and longer than the preceding.

PROTHORAX semicircular, feebly convex, margin translucent and slightly reflexed except at middle of base, median line rather deeply impressed and with an oblique sinuous impression on each side. Apex rather deeply bisinuous and near the angles with small setigerous tubercles.

MESOTHORAX half as wide as the prothorax, as wide as long, sides feebly arcuate and gradually but feebly narrowed to front. Surface with a single semi-corneous plate with distinctly impressed median line.

METATHORAX as wide as the mesothorax but shorter.

ABDOMEN.—Segments 1—4 equal in width, but gradually longer, each with two feebly semi-corneous plates. Fifth segment slightly broader than the others, gibbous posteriorly, plates larger, on each side of middle two acute hooks directed anteriorly the inner smaller, posteriorly a row of small setigerous tubercles. Segments 6—9 gradually shorter and narrower, anal segment more corneous, truncate at tip, anal opening terminal.

SPIRACLES as in *Amblychila*.

LEGS not notably different from *Amblychila* but with rather longer terminal claws.

Specimens of this larvæ were kindly placed at my disposal by the Museum of Comparative Zoology at Cambridge.

***Cicindela repanda*, Dej.**

COLOR yellowish white, head piceous, thorax slightly bronzed.

FORM as in *Tetracha*. Length .66 inch; 16.5 mm. Plate II, fig. 4, 4a to 4d.

HEAD triangular, hind angles obtuse, corneous, concave above, a strongly elevated transverse ridge posteriorly and a feeble longitudinal impression on each side. Frontal margin with prominent middle lobe with sides slightly convergent, on each side a very feeble tooth at base, lateral lobes feebly prominent limited within by a moderate tooth. Head at sides moderately deeply sinuate, hind angles obtusely rounded.

suddenly narrowed behind the posterior eyes. Head beneath very convex, twice as wide as long, form irregularly hexagonal, posteriorly emarginate at middle, median line with a moderately deep depression at middle. Anterior margin trilobed and formed as in *Tetracha*.

EYES as in *Tetracha* although the lower eye of the smaller pair is very indistinct and may escape observation.

ANTENNÆ arising above and behind the base of the mandibles, four jointed, first joint stout, second longer and equal to the next two together, joints 3—4 more slender the terminal shorter. All the joints have moderately long whitish hairs.

MANDIBLES as in *Tetracha*.

MAXILLÆ with the small triangular basal piece, second joint (cardinal piece), moderately stout attaining the sides of the head and with a few setæ in front, third piece with the inner lobe tridentate near the tip and a moderately long more slender terminal articulation. Palpi shorter than the inner lobe, three jointed, joints gradually longer but more slender from first to third.

MENTUM oval in form, narrower at base, basal portion feebly corneous, apical portion membranous. Palpi two jointed, first joint stouter and longer than the second and with moderately long stiff hairs.

PROTHORAX more than twice as wide as long, crescentic, apical margin deeply bisinuate, disc feebly convex, median line finely impressed, a slight sinuous impression each side, posterior and lateral margins with moderately long whitish hairs.

MESOTHORAX less than half as wide as the prothorax, similar in form to that of *Tetracha*.

METATHORAX as wide as mesothorax and a little shorter.

ABDOMEN.—Segments 1—4 gradually longer; fifth segment longer gibbous posteriorly and emarginate and on each side of emargination a slender tubercle, hooks one on each side, long, slender, directed inwards and forwards; segments 6—9 gradually narrower, anal segment moderately long, truncate, anal opening terminal.

LEGS as in *Tetracha*.

SPIRACLES as in *Tetracha*.

The specimen before me was collected by Mr. H. G. Hubbard, near Detroit, and is now the property of the Museum of Comparative Zoology at Cambridge.

The essential differences between the four larvæ just described are as follows:

AMBLYCHILA.—Eyes two. Antennæ with joint two nearly equal to all the others combined. Maxillary palpi with the first joint longest, third shortest.

OMUS.—Eyes eight, two pairs large, two small. Antennæ with the first three joints equal, fourth shorter. Maxillary palpi with joints one and three equal, second shorter.

TETRACHA.—Eyes as in *Omus*. Antennæ with second joint longer than the first and equal to the two following together. Maxillary palpi with the second and third joints nearly equal, each slightly longer than the first.

CICINDELA.—Eyes as in *Omus*. Antennæ of *Tetracha*. Maxillary palpi with joints gradually longer and more slender from the first to the third. Fifth abdominal segment with the gibbosity emarginate behind, each side with a long slender hook and a short acute tubercle the latter directed posteriorly.

In these genera the thorax becomes gradually broader and shorter from *Amblychila* to *Cicindela*. The mentum also varies in form but this member is difficult to describe as its anterior portion, and usually the sides are more or less membranous and the form assumed might be quite different to different observers.

***Dicælus*, sp.**

I am unable to say positively to which species the larva described below belongs. I have before me three specimens one from Georgia and two from Texas. The latter were sent in a bottle with *D. splendidus* and *costatus* so that it may belong to either. Recently Mr. F. G. Schaupp of Brooklyn, has sent me a sketch of the larva of *D. dilutatus* (from which he succeeded in raising the imago), which agrees in every particular with the three larvæ before me. To Mr. Schaupp belongs the credit of having determined the larva as I was rather unwilling to believe my larvæ to be those of *Dicælus*, the small size of the head influencing me in the belief that they were rather *Chlænius*.

COLOR dark greenish blue semiopaque, head reddish yellow.

FORM fusiform depressed narrower in front. Plate II, fig. 5, 5a to 5e.

HEAD reddish yellow, corneous, not deeply inserted in the thorax, above slightly concave, beneath slightly flattened, slightly narrowed behind the insertion of antennæ to base. Head above with anterior margin emarginate at middle, on each side lobed over the mandibles posterior to which is a slight emargination from which the antennæ

arise. Within each lobe is a slight arcuate impression while another feeble impression extends from the base of the antennæ toward the middle of the base. Head beneath with a long but feeble triangular impression broader in front. Anterior margin with a median emargination for the mentum, on each side a deeper notch for the maxillæ limited externally by a moderate lobe which covers the base of the mandible.

EYES.—These consist of six ocelli situated around a brownish spot immediately behind the insertion of the antennæ.

ANTENNÆ are situated immediately behind the base of the mandibles, about one-third the length of the body, four jointed. First joint somewhat stouter than the others, nearly half the length of the head, glabrous, second joint more than twice the length of first also glabrous, third slightly longer than second and fourth a little longer than the third and more slender, these two joints are pubescent and opaque.

MANDIBLES moderately long, arcuate and with a strong acute tooth at basal third.

MAXILLÆ consist of a stout, cylindrical basal piece supporting at its extremity two appendices an inner and an outer, the former two jointed the first joint longer and stouter than the second which is rather slender; the outer appendix is three jointed, twice as long as the inner, the basal joint short and stout, the second more slender and twice as long, the third more slender and half the length of the preceding.

MENTUM broader than long, trapezoidal, narrower posteriorly, obliquely truncate at each distal angle and bearing a two jointed palpus the joints of which are short stout and nearly equal in length, the terminal oval at tip.

PROTHORAX sub-hexagonal, the angulation of the sides behind the middle, surface greenish blue, sub-opaque, semicorneous, a distinct median fine line and on each side a feeble oblique impression.

MESO- and METATHORAX similar to the prothorax but shorter and broader.

ABDOMEN.—The first two segments are shorter than the others and equal, segments 3—8 sub-equal and longer than the first two. The surface is covered with a transverse semi-corneous scute, similar to the thoracic pieces, the scutes being each gradually broader from 1—4, then gradually narrower from 5—8, each has a fine median line. The ninth segment is much narrower than the others and is pro-

longed into two slender, arcuate, corneous processes with their surface submuricate and with very short spinules. The connecting membrane between the dorsal and ventral segments is distinctly visible from above and bears a narrow corneous plate opposite each segment. The ventral aspect of each segment from 1—7 consists of seven semi-corneous plates arranged as follows: a transverse piece along the anterior margin of the segment, behind which are four smaller sub-quadrangular pieces and on each side toward the margin of the segment a narrow longitudinal piece. The marginal piece of the connecting membrane is also visible from beneath. In the eighth segment the pieces are all united in one excepting the two lateral. In the ninth segment all are united. The anus is prolonged into a corneous tube equal in length to any of the preceding segments.

SPIRACLES.—There are nine pairs of spiracles. The anterior is the largest and is situated under the anterior angle of the *mesothoracic* segment. The other spiracles are situated in the dorsal portion of the connecting membrane near the anterior angles of segments 1—7 respectively.

LEGS are gradually longer from the first to the third pair, the coxæ are prominent and conical, the femora longer than the coxæ, gradually broader toward the tip and with an oblique impression anterior to the middle. The tibial piece is a little longer than half the femur, slightly clavate. The tarsal piece slender, as long as the tibia and furnished with two small equal claws.

From the letter of Mr. Schaupp I learn that the larva when full grown transforms itself in a very short time into the pupa, occupying probably but little more than an hour's time. It remains in pupa seven days and requires three days more to become of full color. During the change from larva to pupa the form expands considerably so that it would not be supposed that so large an insect had been produced from so small a larva.

***Rhynchophorus cruentatus*, Hbst.**

Mention is made of this species to correct an error which has crept into all mention of the larva.

There is but *one pair* of spiracles. These belong to the prothoracic segment and are situated at the side immediately beneath the margin of the plate forming the large dorsal scute. Chapuis and Candeze speak of nine pairs of spiracles but a carefully prepared skin shows the prothoracic pair only.

The credit of this discovery is due to Dr. Leconte.

EXPLANATION OF PLATE II.

Fig. 1.—*Amblychila cylindriciformis*, Say, lateral view of larva.

Fig. 1, a.—Dorsal aspect.

Fig. 1, b.—Head, pro- and mesothorax, much enlarged.

Fig. 1, c.—Head, under side.

Fig. 1, d.—Antenna.

Fig. 1, e.—Mentum and maxilla.

Fig. 1, f.—Leg, front view.

Fig. 1, g.—Hook bearing plate of fifth abdominal segment.

Fig. 2.—*Omus Dejeani*, Reiche, lateral view of larva.

Fig. 2, a.—Head, pro- and mesothorax.

Fig. 2, b.—Head, under side.

Fig. 2, c.—Mentum and maxilla.

Fig. 2, d.—Hook bearing plate.

Fig. 2, e.—Antenna.

Fig. 3.—*Tetracha carolina*, Linn., lateral view; nearly twice natural size.

Fig. 3, a.—Head, pro- and mesothorax.

Fig. 3, b.—Head, under side.

Fig. 3, c.—Mentum and maxilla.

Fig. 3, d.—Antenna.

Fig. 3, e.—Hook bearing plate.

Fig. 4.—*Cicindela repanda*, Dej., nearly twice natural size.

Fig. 4, a.—Head, pro- and mesothorax.

Fig. 4, b.—Head, under side.

Fig. 4, c.—Antenna.

Fig. 4, d.—Dorsal view of fifth abdominal segment.

Fig. 5.—*Dicælus (costatus? purpuratus?)*, dorsal view.

Fig. 5, a.—Head and prothorax above.

Fig. 5, b.—Head beneath.

Fig. 5, c.—Head and prothorax, side view.

Fig. 5, d.—Leg.

Fig. 5, e.—Ventral aspect of an abdominal segment, showing the arrangement of the plates.

